

# REMARKS

Claims 1 - 20 are pending, with claim 3 having been amended above so as to broaden claim 3.

Claims 1 and 9 stand rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,067,106 to Ishibe et al. Reconsideration of this rejection is respectfully requested. The term “imaging lens” as used in Applicant’s specification and claims is a term of art in the field of optics. Also, the term “f- $\theta$  lens” is a term of art in the field of optics. These two types of lenses are entirely different, and thus an “f- $\theta$  lens” is not an “imaging lens” and vice-versa. An “imaging lens” is a lens that forms images wherein the lens designer minimizes optical aberrations so that the image is a faithful reproduction of the object being imaged. The light rays entering the lens are non-parallel. An f- $\theta$  lens is a lens that focuses a scanned light beam from a rotating deflector to a spot (normally, the spot is the size of a pixel of an image) wherein the designer purposely designs large optical aberrations into the lens for the purpose of making the linear speed of the scanned spot constant so as to scan a document for reading or writing pixels of the document. The light rays entering an f- $\theta$  lens are usually parallel. If one attempted to use an “f- $\theta$  lens” as an imaging lens, the resultant image would be greatly distorted and entirely unsatisfactory. Moreover, if one attempted to use an “imaging lens” as an “f- $\theta$  lens”, the scanning spot speed would be maximum near the margins of a document (i.e., at large field angles  $\theta$ ) and minimum near the center of the document (i.e., on axis). Such a non-uniform scanning speed would cause problems when attempting to modulate the scanning light beam with information so as to impart information to, or read information from, a document. Large aberrations are intentionally designed into an f- $\theta$  lens in order to make the scanning speed of a scanned light beam on a document constant, irrespective of the field angle  $\theta$ . However, such a lens would be entirely unsuitable, due to its large optical aberrations, if it were to be used as an “imaging lens”, as this term is used in the field of optics. The lens 16 in Fig. 9 of Ishibe et al. is thus not an “imaging lens” as is claimed since (as discussed at col. 17, lines 28 - 45, of the ‘106 patent to Ishibe et al.) it is an “f- $\theta$  lens”. Thus, it is respectfully submitted that claim 1 and

dependent claim 9 are **not** anticipated by U.S. Patent No. 6,067,106 to Ishibe et al.

Claims 3, 7, 11 and 15 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,991,063 to Ando in view of U.S. Patent No. 5,671,077 to Imakawa et al.

Reconsideration of this rejection is respectfully requested. In column 5, lines 3 - 8 of Ando, it is disclosed that the scanning lens 7 has “f- $\theta$ ” characteristics in the scanning line direction.

Therefore, for the same reason as discussed above, it is respectfully submitted that the combination of Ando and Imakawa et al. as discussed by the Examiner, would **not** have made the invention of claim 3 obvious, since neither Ando nor Imakawa et al. relate to an “imaging lens” (a term of art in optics, as noted above) and as claimed in claim 3 at line 3. Claim 3 has been amended above at line 6 so as to delete the limitation “both anamorphic and”, thus broadening the claim. Support for this change can be found at page 6, line 4 to page 9, line 1 of the specification as filed, which teaches the advantages of the present invention and the fact that, although the laser array imaging lens 2 includes at least one aspheric surface (see page 7, line 14), it is preferable that one surface “also have an anamorphic shape” (see page 8, lines 4 - 5) so as to enable focusing to be “separately performed in both the scanning and sub-scanning directions” (see page 8, lines 22 - 23). Thus, claim 3 as amended covers the situation where focusing in both the scanning and sub-scanning directions may not be separately performed. With regard to claims 7, 11, and 15, as each is dependent (directly or indirectly) from claim 3, these claims would not have been unpatentable over Ando in view of Imakawa et al. at least for the reason claim 3 is not unpatentable over Ando in view of Imakawa et al.

Claim 2 stands rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,067,106 to Ishibe et al. in view of U.S. Patent No. 5,912,768 to Sissom et al. Reconsideration of this rejection is respectfully requested. As discussed above in discussing the rejection of claim 1, the lens 16 of Ishibe et al. is an f- $\theta$  lens and is **not** an “imaging lens” (a term of art in optics, as discussed above) as claimed in line 1 of claim 2. Therefore, the combined teachings of Ishibe et al. and Sissom et al., discussed by the Examiner, would **not** have made the invention of claim 2 obvious.

Claims 5 and 13 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S.

Patent No. 6,067,106 to Ishibe et al. in view of U.S. Patent No. 5,956,070 to Paoli et al.

Reconsideration of this rejection is respectfully requested. As discussed above in discussing the rejection of claim 1, the lens 16 of Ishibe et al. is an f- $\theta$  lens, not an “imaging lens” as claimed in line 1 of claim 5. Therefore, the combined teachings of Ishibe et al. and Paoli et al. discussed by the Examiner, would **not** have made the invention of claim 5 obvious. It is noted that the lens 20 of Paoli et al. is an imaging lens. However, it is respectfully submitted that the limitations in lines 4 - 7 of claim 1, from which claims 5 and 13 (directly or indirectly) depend, patentably distinguish claims 5 and 13 from the combination of Ishibe et al. in view of Paoli et al.

Claims 6, 10, 14, 17 and 19 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,067,106 to Ishibe et al. in view of U.S. Patent No. 5,912,768 to Sissom et al. as applied to claim 2, and further in view of U.S. Patent No. 5,956,070 to Paoli et al.

Reconsideration of this rejection is respectfully requested. As discussed above in discussing the rejection of claim 1, the lens 16 of Ishibe et al. is an f- $\theta$  lens, not an “imaging lens” as claimed in line 1 of claim 1. As claims 6, 10, 14, 17 and 19 each (indirectly) depend from claim 1, the combined teachings of Ishibe et al., Sissom et al., and Paoli et al., discussed by the Examiner, would **not** have made the invention of claims 6, 10, 14, 17 and 19 obvious. It is noted that the lens 36 of Sissom et al. is an imaging lens. However, it is respectfully submitted that the limitations in lines 4 - 7 of claim 1, from which claims 6, 10, 14, 17 and 19 indirectly depend, patentably distinguish claims 6, 10, 14, 17 and 19 from the combination of Ishibe et al., Sissom et al., and Paoli et al.

Claims 4, 8, 12, 16, 18 and 20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,991,063 to Ando in view of U.S. Patent No. 5,671,077 to Imakawa et al. as applied to claim 3, and further in view of U.S. Patent No. 5,912,768 to Sissom et al. Reconsideration of this rejection is respectfully requested. As discussed above in discussing the rejection of claim 3, neither Ando nor Imakawa et al. relates to an “imaging lens” as is claimed in line 3 of claim 3. As claims 4, 8, 12, 16, 18 and 20 each (directly or indirectly) depend from claim 3, the combined teachings of Ando, Imakawa et al., and Sissom et al. discussed by the Examiner would **not** have made the invention of claims 4, 8, 12, 16, 18 and 20

obvious. As noted above, although the lens 36 of Sissom et al. is an imaging lens, it is respectfully submitted that the limitations in lines 5 - 16 of claim 3, from which claims 4, 8, 12, 16, 18 and 20 (directly or indirectly) depend, patentably distinguish claims 4, 8, 12, 16, 18 and 20 from the combined teachings of Ando, Imakawa et al. and Sissom et al. Moreover, with regard to the rejection of claims 18 and 20, the Examiner is **incorrect** in stating that the stop in Ando is positioned so that the laser array imaging lens is substantially telecentric on the light-source side. Note that, whereas the stop in Applicant's figures is on the image-side of the lens, the stop in Ando is on the light source side of the lens (in other words, the stop 3 in Ando is in the front focal plane of the imaging lens, not in the back focal plane).

With regard to paragraph 9 of the Office Action, two of the three listed patents that are cited as "of interest", namely U.S. Patent No. 5,923,358 to Yamakawa and U.S. Patent No. 5,745,296 to Nakamura et al., (just as in U.S. Patent No. 5,956,070 to Paoli et al.) **do** relate to an "imaging lens". In each of these patents, a laser array light source is used to perform the equivalent of light beam scanning by imaging (with small aberrations) each pixel of a "scan" line (without using a mechanical scanning means such as a rotating polygon mirror scanner or a galvanometer-type mirror scanner). However, **none** of these patents remotely suggest the features claimed in claim 1, lines 4 - 7, or in claim 3, lines 5 - 16. Therefore, unless more pertinent prior art is found, it is respectfully requested that an early Notice of Allowability be provided.

Enclosed herewith is a check in the amount of \$130.00 for a one-month extension of time

in which to reply to the Office Action. If any additional fee is required, please charge it to Deposit Account No. 01-2509.

Respectfully submitted,

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